

# Wetlands re-created at Fort McHenry

by Betsie Blumberg



The wetland that surrounded Fort McHenry during the War of 1812 is being re-created by the National Park Service, the National Aquarium in Baltimore, and many other partners.



The project has entailed the removal of phragmites, a non-native reed that reduces wetland biodiversity, the introduction of native plant species, the redesign of the area's hydrology, and the monitoring of water quality.

CAN A HUMAN-MADE WETLAND FUNCTION AS a tidal marsh? That is the question scientists are waiting patiently to answer at Fort McHenry National Monument and Historic Shrine, Maryland. The wetlands that surrounded Fort McHenry during the War of 1812 are being re-created with cooperation from the National Aquarium and 30 other public and private organizations. This long-term project in Baltimore is attracting the energies of local and national corporations, nonprofits, government agencies, schools, and the public, who are participating in the cleanup and managing the rehabilitation of wetland vegetation and waters. Their efforts are helping to create a functioning wetland where the original marsh was destroyed by almost three centuries of human assault.

In 1982, after the highway and tunnel for Interstate 95 had been cut through marshland adjacent to Fort McHenry, the State of Maryland was obliged by law to create equal acreage of wetland to replace what was lost. One site that was mitigated, but thereafter neglected, became an eyesore for visitors to the park. In 1997 the park, soon joined by the National Aquarium, began to clean up the 7-acre site and restore the 1812 landscape. At the start of the project, one-third of the area was paved with debris, including everything from old cars to hypodermic needles, and required heavy equipment and hundreds of volunteers to clear. Trash removal is ongoing because tidal flow carries trash in but wetland vegetation and clogged drainageways prevent it from flowing out. Since 1997, project partners have removed 996 tons of debris.

Normally, tides flush a marsh with a regular pulse. However, this has not been happening at this site because the concrete pipes, 3 feet in diameter and designed to lead tidewater past infrastructure to and from the wetland, have become clogged and trap debris. Neither the natural pulse nor the fish that would come with it get through. This situation should be corrected in winter 2002–2003 when cooperating engineers from the USGS, the National Oceanographic and Atmospheric Administration, and aquarium staff reconfigure the hydrology of the site.

Selecting vegetation to introduce was an experiment in itself. The water is brackish and salinity varies, sometimes becoming as high as 50% of seawater. Species successfully established include the salt bush (*Iva frutescens*), groundsel tree (*Baccharis halimifolia*), and smooth cordgrass (*Spartina alternifolia*). Many wildflowers and emergent

aquatic species have spread naturally with good diversity, but all are threatened by the invasive common reed, *Phragmites australis*. To control it the partners have used techniques such as solar blankets (which heat the ground, killing vegetation), herbicides, and mechanical removal, followed by planting of native big cordgrass (*Spartina cynosuroides*).

Only native flora have been introduced intentionally. When conditions are right, the fauna arrive on their own, most notably birds. One hundred thirty years ago, a physician and ornithologist at the fort made a list of 210 birds he saw in the wetlands. Recently bird-watchers have recorded 195 species there. (A few on the original list have since become extinct, such as the passenger pigeon.)

This new wetland already supports an increasing variety of living things, and the beginning of a peat layer has been detected. But the development of a spongy peat substrate that filters the pulsing tide and that characterizes a salt marsh is a slow process of deposition and accumulation of organic material. Natural wetlands in the Chesapeake Bay are 10,000 years old. Meanwhile, volunteers helping with cleanup, schoolchildren learning about wetlands, local industries complying with recent antipollution regulations, bird-watchers cataloging species, and park visitors who view the marsh from the historic fort are all watching to see what's happening in the new salt marsh. ■

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Trash interferes with the proper function of the wetland and is removed regularly by the partners and volunteers. Left unchecked, the debris clogs pipes linking the wetland and the harbor and stops tidal pulses that carry fish, replenish oxygen, and promote wetland vitality.